

Carl Malamud

has made the nonprofit

Internet

Multicasting

Service

the first

round-the-clock

'cyberstation' on

the Internet



KAREN T. BORCHERS — MERCURY NEWS

Agent of Change

NewsMaker Profile

CARL MALAMUD

- **Age:** 35
- **Education:** Masters of Business Administration, Indiana University
- **Founder:** Internet Multicasting Service, Washington, D. C.
- **Past Experience:** Computer consultant for government agencies, including the Federal Reserve and the Pentagon.
- **Other:** author of five books

BY DAVID BANK
Mercury News Staff Writer

WHEN Rep. Newt Gingrich took over as Speaker of the House on Wednesday, Carl Malamud helped carry Gingrich's message to the people.

More precisely, to 12 people.

That was the size of the audience when Malamud's Internet Multicasting Service launched gavel-to-gavel coverage of floor debate in the House of Representatives and the Senate over the worldwide Internet computer network.

Malamud's audience was limited because the live audio transmission requires high-capacity communication lines that are not yet available to most home computer users.

But like all of Malamud's efforts, the Congressional Memory Project is a pilot for something bigger, much bigger.

Congress itself is making texts of bills and speeches available through Thomas, its new site on the Internet. Malamud is going a step further, serving up live and pre-recorded audio files.

The Internet Multicasting Service has become the first round-the-clock "cyberstation" on the Internet, with channels for music, international

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Multicasting becomes a hit by distributing Rolling Stones concert

BY DAVID BANK
Mercury News Staff Writer

FIRST came e-mail, then the World Wide Web.

Next up is multicasting, which really will make the Net rock and roll.

It was the 20-minute Rolling Stones concert over the Internet's multicast backbone, or Mbone, that brought widespread attention to it last November.

"Now a lot of people are trying to figure out how to get their hands on it and turn it commercial," said Stephan Fitch, president of Thinking Pictures, the New Jersey company that produced the Stones event.

Multicasting is a method for distributing live programming over the Internet. The programming can take many forms: video, audio, text or "whiteboards" — in essence electronic chalkboards that any number of users at different sites can scribble to simultaneously. Unlike traditional television or telephone service, multicasting connects groups with groups. Every viewer also can be a transmitter.

Multicasting generally requires high-capacity network connections that are still mostly found only in corporate or university settings. But the increasing home use of integrated services digital network, or ISDN, lines and the prospect of on-line access via cable means that multicasting may soon become a popular medium.

Because digital video and audio data consists of millions of bits of information per second, the developers of multicasting have established a reservation system for events — such as the Stones concert — to avoid overloading the Mbone. The growth in the number of smaller networks connected to the Mbone is doubling every seven months, a faster growth rate than the Internet itself.

"It's still an experimental service," said Steve Deering, the researcher at Xerox's Palo Alto Research Center who developed the original Mbone protocols. "We're explicitly preventing its growth. If we stopped jumping on it, it would take off."

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■ MALAMUD

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programming and public affairs in addition to the proceedings of the House and Senate.

Malamud is taking technologies developed in research labs and putting them to popular use to show the Internet's potential once homes are equipped with affordable, high-speed lines.

To awaken people to the changes he sees ahead, Malamud sometimes inserts short audio clips into on-line sessions with his favorite slogan: "Adapt or die!"

"He is no different from (CBS founder) Bill Paley or Edward R. Murrow in creating the new cyberspace model," said Eric Schmidt, chief technology officer at Sun Microsystems Inc., which has supported many of Malamud's projects. "He sees himself as an information entrepreneur and a change agent."

Unlike other entrepreneurs, however, Malamud, 35, is not looking to cash in on the Internet's explosive growth. He ran up more than \$40,000 in credit card debt to establish the Internet Multicasting Service as a non-profit corporation in 1993 and says he has turned away offers of millions of dollars from venture capital investors. He pays himself \$6,000 per month.

Non-profit status, he said, lets him move quickly on projects, cut deals with both government agencies and private corporations, and, most importantly, pursue his interests without worrying about turning a profit.

"The fun work is before there's money in it, because it's never been done," he said. "If I wanted to make money, I'd go work for a computer company. I felt I had a vision of what the system ought to look like that I felt others didn't share."

Malamud's vision is of an electronic community — cyberspace — that includes more than shopping malls and movies-on-demand and virtual rooms for idle gossip. The Internet Multicasting Service is trying to construct public spaces in the electronic world — free concerts, public libraries, open government.

Malamud constructs those sites from his cramped offices in the National Press Club building in Washington D.C., which is jammed with Sun workstations, routers from Cisco Systems Inc., audio sound boards and huge computer servers that store billions of bits of data. He's well-wired, with a high-speed T-1 line directly to the Internet. Networking wizards from around the world drop by to help; Malamud has commitments for the coming year of three days of volunteer time from a dozen top-flight researchers.

"Carl has spent two or three years doing something that nobody else has been crazy enough to do and that is to cajole lots of equipment and money out of these corporations," said Simon Hackett, who spends two-thirds of his time running his networking company in Adelaide, Australia, and the rest roving the world having fun, particularly with Malamud.

ers like Mead Data Central, which holds the government contract for the information.

"On Edgar, it's unlikely it would have happened without him," said Jamie Love, director of the Taxpayer Assets Project, a Ralph Nader spin-off focused on securing public access to government information sources. "He's done more than anybody in the executive branch to prove the value of government information."

The next project of Malamud's "Information Highway Beautification Fund" was to be the huge data base from the U.S. Patent and Trademark Office. But the effort recently ran into resistance from patent commissioners who again fear free distribution will undercut those companies who sell the information for a fee. That attitude brings only a sneer from Malamud.

"They are more worried about their sweetheart relationships with government contractors than they are with their public duty," he said. "They feel our activities threaten their friends. I call that improper, at best."

Launches alternative

He launched an alternative "telephone company" that uses the Internet to send faxes around the world, virtually for free. The idea came to him when he realized a telephone number could be expressed as an e-mail address. That makes it possible to send fax messages as electronic mail, which incur no long-distance charges. When the message reaches a computer near its destination, the computer makes a local call to the receiving fax machine.

At Christmas, Malamud produced the first live karaoke performance of Handel's "Messiah," sending the annual Kennedy Center performance over the Internet with sing-along lyrics highlighted in red.

"He's making the technology do things we never expected," said Steve Deering, the researcher at Xerox's Palo Alto Research Center who developed the protocols for multicasting — a way to send audio and video over the Internet — as a tool for researchers.

"We don't have the imagination to go make these things happen, or the drive," Deering said. "He does. He doesn't consider

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anything to be too much of a hassle."

Malamud was bred to solve science problems. His father was a founding scientist at Fermi Lab, the advanced particle physics laboratory at the University of Chicago, and his mother holds a doctorate in invertebrate physiology.

But he hasn't been able to shake his lifelong obsession with public policy. At 17, he managed a losing campaign for a Democratic state senate candidate in a Republican stronghold in a nearby Illinois suburb.

His computer knowledge is self-taught. As a Ph.D. candidate at Indiana University, he was supposed to be teaching undergraduate economics. But he complained so much about the campus computer center that a system operator told him to put up or shut up.

Consulting background

A decade of consulting for large computer companies and government agencies such as the Federal Reserve and the Pentagon taught him that simple access to information can change the course of technological development. The success of the Internet, he discovered, could be traced to something as simple as free on-line access to the technical standards for the protocols. Rival standards withered because college students in computer labs could not get at the tightly held and expensive documentation.

That led to his other efforts to free other caches of government information and make them available through commonly used Internet features such as e-mail, file transfer protocols (FTP) — which allows users to get files, such as shareware from remote locations — and the World Wide Web.

But mostly he tries to have fun (his definition: an all-night effort

to wire up a network for a trade show demonstration, for example) and stir up trouble. He once persuaded a publisher to give him \$45,000 to go around the world three times in six months exploring the still-nascent Internet.

Indeed, his current multicasting efforts grew out of his desire to start a magazine to tweak the sensibilities of the computer industry and tout the potential of the Internet. But he found it would cost millions of dollars to publish and he feared being beholden to advertisers.

"Then the idea came. Let's use the Net," he said.

That led to "Geek of the Week," a weekly half-hour interview that computer users were able to download and play back on their own machines. The point was partly to distribute the information and partly to understand the new distribution technology itself.

Radio show on Internet

The reaction at the time was, "What, a radio show on the Internet?" Two years later, the show has become a station that carries weekly luncheons from the National Press Club, programming from National Public Radio, a 24-hour music channel and now, the House and the Senate.

It's still a work in progress. For example, users will be able to recall snippets of legislative action by electronically searching the text of the Congressional Record for the desired subject and then ordering the audio files of the proceedings — a kind of Congress-on-demand that C-SPAN is not able to offer.

"This method of communicating with people is going to be major media," Malamud said. "Eventually, we're going to have audiences of millions of people. This will be an important part of people's lives."

IF YOU'RE INTERESTED

To reach the Internet Multicasting Service, point your World Wide Web browser to <http://town.hall.org>. For information about the Congressional Memory Project, use <http://town.hall.org/radio/>. If you don't have access to the Web, send e-mail to info@radio.com, which will generate an automatic response to frequently asked questions. Thomas, the new congressional information service on the Internet, can be reached at <http://thomas.loc.gov>.

A Public Offering.



Equipment donated

Companies like Sun, MCI, O'Reilly & Associates and the publishing giant R.R. Donnelley & Sons Co., have each put up at least \$100,000 in cash and even more in donated equipment and services. Last year, Malamud raised about \$650,000. This year, he figures he'll collect more than \$900,000.

The companies hand over the money in return for access to his ideas, his research findings and a piece of the publicity he generates with "cheap stunts" that demonstrate the Internet's versatility.

"He thinks in such weird terms," said Lance Boxer, vice president for data services for MCI, which is making a major push into the Internet market. "It's the kind of out-of-the-box thinking MCI needs right now."

"He's got ideas about how to take this thing called Internet, which was not a profitable business, and make it into something we could sell."

Resources helpful

The resources allow Malamud to quickly put many of his endless supply of ideas into practice. For him, engineering glitches and bureaucratic obstacles are simply different forms of problems to be solved.

When he found out that the Securities and Exchange Commission was paying a private information company to maintain its electronic data base and then paying again to use the data base, he offered to solve the problem for a fraction of the cost. That led to a two-year experimental project, funded by the National Science Foundation to make the Edgar data base available over the Internet.

That put him in competition with private information provid-